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ABSTRACT

Noting the drastic, sudden increase in enrollment in the post-Sputnik period in Russian language courses and the resultant difficulty of finding qualified instructors, the author describes a rapid-reading methodology which concentrates on forms and expressions prevalent in technical writing. Description of suggested teaching techniques concentrates on: (1) the Cyrillic alphabet, (2) cognates, (3) oral practice, (4) word classes and drill work, (5) verb tenses, and (6) gerunds. Commentary on the eventual transition from reading to translating concludes the article. (RL)

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SCIENTIFIC RUSSIAN FOR THE BEGINNER:
A PRAGMATIC APPROACH

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The launching of the first sputnik in the fall of 1957 helped to revitalize many phases of American education, especially in the realms of science and technology. Foreign languages, too, felt the new drive toward greater achievement. The increase of foreign-language enrollment became particularly apparent in the field of Russian language studies, although the rise has not been as spectacular as might have been expected. At any rate, it is reported that while only sixteen high schools in the United States offered Russian before Fall, 1957, their number increased to over four hundred in one year, while the enrollment of students of Russian in our colleges and universities rose from sixteen thousand to twenty-five thousand.

Such an increase in enrollment, naturally, has placed administrators, staffs, and prospective students in a difficult position. There simply were not enough competent and properly trained persons to teach all these new Russian courses. The situation was, and still is, particularly difficult in high schools or elementary schools which might wish to start Russian classes. Nevertheless, vigorous steps are being taken to relieve the teacher shortage in Russian: NDEA institutes, increased offerings of courses in colleges and universities, exchange programs with the Soviet Union, and the certification of native-born teachers by State Examination Boards. These and other means are being used to secure additional teachers of Russian on all levels. While we cannot say that at present the supply is adequate to meet the demand, at least the most urgent requirements are being met.

However, no matter how many students begin to take up Russian, there are two groups which cannot very well take advantage of the usual type of course in the Russian language. These groups are: 1, the majority of graduate students in science and technology; and 2, our established scientists and technicians--be they in research, teaching, government, or industry.

In this respect, as in many others, the Soviets were much quicker to recognize the needs and to take measures to meet them. Realizing that Western sources contain vast amounts of useful information, they have their students in science and technology study scientific English, German, or French throughout the greater part of their college careers, in addition to requiring several years of foreign-language preparation for admission.¹ It is generally conceded that much of the progress achieved by Russian science can be attributed to a maximum utilization of Western and other non-Russian sources.

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In contrast, the linguistic preparation of our scientists and technicians is very meager, especially with respect to the Russian language. And yet the importance of Soviet scientific literature is increasing rather than decreasing. Professor William B. Edgerton of the University of Indiana states that "in the chemical field alone more than 16 per cent of the world's scientific literature is now published in Russian which can be read by only two per cent of American scientists."² Another sad fact is that many of our science students who could greatly benefit from knowing Russian avoid studying it because they believe it to be too difficult and time-consuming. Thus the numbers of graduate students at Carnegie Institute of Technology taking qualifying examinations in foreign languages are: German, 60 per cent, French, 30 per cent, and Russian, 10 per cent. In fact, many who obviously ought to be taking Russian instead of French or even German--in view of the preponderance of Russian materials in their fields--avoid doing so because of the reputed difficulty of the Russian language.

One cannot very well maintain that Russian is easy. An English-speaking person can find hardly anything in his experience to help him in learning Russian: alphabet, vocabulary, word formation, pronunciation--all these appear strange and confusing. But hardest of all is Russian grammar with its highly inflected noun-adjective system, its confusing perfective-imperfective verb pattern, its elaborate and cumbersome numerical declensions and its many other lexical complications. Any one of these points, if treated in detail and in depth, may seriously delay the learner's progress. The student needs a completely different approach if he is to attain reading skill in science and technology in record time. He must be taught in a pragmatic way--the teacher must help him to obviate pitfalls and complications, to circumvent or postpone the consideration of involved, rare or nonrelevant constructions. Instead, he must concentrate on forms and expressions prevalent in technical writing.

The question naturally arises: is there really so much difference between "technical" and non-technical Russian? Does not a person who has learned to read the Russian classics, for instance, possess the skill necessary to understand an article, let us say, in atomic physics or analytical chemistry? It is my experience that he does not. Russian literary prose is rich in implications, overtones, in "things left unsaid and feelings merely hinted at." This is exactly what is not acceptable in scientific style: it must be precise, definite, concrete; it must leave nothing to the imagination. In this respect I thoroughly agree with Professor Lorraine Kapitanov of the State University of Pennsylvania, who says: "I can assure you with heartfelt conviction from personal experience that a background of Pushkin, Dostoevsky and Tolstoy are indeed poor preparation for coping with the participle-ridden language of the Russian

scientist. ³ Nor is modern emphasis on the spoken language of any great help to persons desiring to understand and interpret scientific literature. Again, in the words of Professor Kapitanov: "Virtually everything about technical Russian, except the alphabet and the pronunciation, differs in some degree from the study of Russian as we normally know it. The aim, the scope, the student population, the material, and the teaching method--all are specialized." To characterize the purpose of such a course in one simple statement, we may say that its aim is to teach students the maximum amount of technical Russian in a minimum amount of time.

The first task to be accomplished is to teach the students the Cyrillic or Russian alphabet. In fact, a thorough and early mastery of the alphabet is probably more essential in this approach than in any other. Moreover, the student must learn not only the identity and sounds of the letters, but also their sequence. This will enable him to orient himself with a minimum of time and effort in the glossaries and dictionaries. It will be recognized that dictionary work figures heavily in such a rapid approach to the language.

As for the modern Russian alphabet, it is fortunately less complicated than it seems. The outlines of most of the letters are clear, without the ornamentations and involutions of, let us say, Arabic or Armenian. Each letter stands for one sound, or nearly so; altogether, Russian is rather phonetic. Six of the thirty-three letters of the Russian alphabet are practically identical with their Latin counterparts; they may be summarized in a little mnemonic device as "OKTEAM." Seven other letters resemble Greek equivalents, while two seem to be derived from Hebrew. There are several special letters to indicate sibilants and combinations of sibilants; like any other Slavic language, Russian is rich in these consonants. Then there are five letters which are completely misleading, that is, they represent sounds entirely different from those of the Latin letters they resemble. These may be summarized in a little Russian word "BPYH," meaning "LIAR," since they "believe" the sounds they seem to represent. As for the sequence of the letters, they follow the Greek rather than the Russian order. The purely Slavic sibilants, some special symbols and two diphthongs (the "yoo" and the "ya") are grouped toward the end. However, from the "i" (ee) to the "u" (oo), the sequence of the eleven letters (except for the q, which does not exist in Russian) is the same as for the Latin alphabet. With these and similar hints the teacher can help the students to take the first hurdle towards reading Russian.

The usual way of presenting Russian words to the student, once he has mastered the alphabet, or, better still, while he is learning it, is in the form of cognates, those words belonging to other Indo-European languages and having approximately the same meaning in all these languages. In scientific Russian such words are very numerous and are increasing

as the sciences advance and expand. The international cognates as used in Russian may be nouns, verbs, adjectives, or adverbs. They may be easily recognized in some instances, but may appear slightly disguised in others. At times the characteristic endings may help to identify these cognates. Thus, for example, a "-tsia" ending parallels the international or English "tion; "-ya" (ee-ya) ending, the English "y" as in "psychology" or "anatomy," while a host of verbs having the infinitive ending in "-ovat" account for English verbs such as "concentrate," "activate" or "amalgamate." At times these cognates will not be easily recognizable unless read aloud. It is therefore good practice to have students, imitating the teacher, read aloud words and, later on, phrases. The time and effort put in such practice will more than pay for themselves in the ability of the students to recognize semi-cognates and transliterations. It is also advisable to have students transliterate English scientific cognates into Russian. Some students reveal unexpected talent in reproducing Russian lettering.

Once the student can read and pronounce Russian syllables and words, he is ready for his first encounter with a simple textbook. The best way to introduce this work is in the form of easy sentences, showing case dependencies of nouns and the basic uses of verbs. The Russian noun declension, in my opinion, can be approached both inductively and deductively. That is, as soon as the student knows the functions of the cases and some of the endings, he can be given summaries and tables of noun declensions. By the way, technological students like to operate with tables and charts. The teacher should attempt to provide them with such aids whenever and wherever possible. Four simple charts, grouping together masculine and neuter noun endings in the singular (because of their similarities) and masculine and feminine nouns in the plural (for the same reason), can account for the majority of noun declensions.

From the study of nouns the student proceeds to the analysis of adjectives. This aspect of Russian grammar is even simpler, especially since the entire declension is based on the personal pronouns "on," "ona," "ono" (he, she, it), and "oni" (they), from which the adjective endings are apparently derived. A thorough mastery of adjective endings opens an entire realm of Russian grammar to the student, in view of the fact that relative and demonstrative pronouns, ordinal numbers, and--what is most important in scientific style--the participle declensions are basically adjective declensions. Key forms may be drilled in chorus and memorized by repetition in class or home study. Attention should be drawn to the inflectional endings as indicative of the relationship of the words to each other. This ending analysis should become as spontaneous and automatic as possible with the student. Throughout the process, the predominant aim, namely, the direct derivation of meaning from the text, should never be forgotten. All drill work has this pragmatic or strictly utilitarian purpose.

The Russian verb is reputed to be the most formidable barrier to the mastery of the language, and no doubt it is--for those who want to speak it and, of course, for those who want to write it. But for those interested merely in reading technical Russian, the verb is not too formidable--provided non-pertinent difficulties are avoided or circumvented. Instead of emphasizing the difficulties, one ought to concentrate on simplicities. Russian is simple, above all, in the extreme economy of verb endings in the present tense: there are essentially only two sets of six personal endings, divided into a first conjugation, which has the Russian "e" (pronounced either "ye" or "yo") in four places, and a second conjugation, which has the "i" (ee), also in four places. Since in technical reading material familiar forms and direct address are absent, it is sufficient to concentrate on three verb endings (third person singular and plural, and the first person plural). Moreover, the first person plural may be used with the perfective or finite action verbs to express a hortatory form; for this use, one merely omits the personal pronoun. The third person plural with both perfective and imperfective forms may be similarly employed (that is, by omitting the personal pronoun) to express an impersonal construction.

The Russian past tense is a model of simplicity: with few exceptions (those relevant can easily be pointed out) the past tense--which includes all past tense forms existing in other languages--is formed by dropping the infinitive ending and substituting for it an "l" for the masculine subject, an "la" for the feminine, and "lo" for the neuter, and an "li" for all plurals. As if to emphasize the cheerful fact that the Russian verb is not difficult, the entire subjunctive-conditional mood consists of the past tense of the indicative plus a particle "byi" (sometimes merely indicated by the letter "b"). Quite appropriately, conditions contrary to fact, no matter what time is involved, make use of verbs in this single conditional-subjunctive mood.

To be sure, it is here that the simplicity of the Russian verb ends. The system, with its imperfective-perfective coupling of forms, with its irregularities when proceeding from the infinitive to the present tense, with the complication introduced by the verbs of motion, continues to plague the student many a year. However, in a streamlined approach to technical Russian even this formidable obstacle may be reduced to reasonable proportions. For instance, the perfective--that is, the finite or complete action verb in the present tense has a future meaning--since logically nothing can be "perfected" or finished, in the present moment. Thus, while the non-prefixed imperfective verb form "ya pishu" means "I write" or "I am writing," the prefixed form "ya napishu" (which is one of the perfective variations of the verb) means "I shall write down." In ordinary speech, the distinction between the two forms is important. However, in technical style, whether a student translates "I write down" instead of "I shall write

down" will in most cases not be important. At any rate, he will be comprehended, and this is sufficient for the start. Much of the time relationship will be apparent from the context. Eventually, of course, the student himself will begin to distinguish the two forms, both because he will logically wish to express the correct time relationship and also because he will have learned more grammar.

Two verbal forms must be given special attention in the study of scientific Russian: the participles and the so-called gerunds, which are in reality verbal adverbs. The participles occur with great frequency in scientific Russian literature, especially in the form of extended participial constructions. The best way to approach this difficult form is to make the student "participle conscious," to help him recognize these forms with ease and assurance. There the Russian alphabet can be of great help, since it provides, so to speak, characteristic endings to help identify this difficult form. These endings are shcha for the present active participle, vsha for the past active, the m for the present passive, and the nn or t for the past passive, plus, of course, the appropriate adjective endings. The student will learn to identify and properly translate these forms, either by using a corresponding English participle, or, in most cases, by using an appropriate relative clause. As for the troublesome extended participial construction, the fact that in the vast majority of cases it is followed by a prepositional phrase will help to identify it. Adequate practice examples and drills should be provided by the teacher.

The same care must be applied to the so-called gerunds. These may be either "present gerunds" or "past gerunds"; appropriately, they are based on either the present or the past verb forms. The present has the characteristic ending -ya (or -a), which appears on no other verb form, and the past the no less outstanding -v. Since the gerunds always refer to the subject, there is no confusion possible as in the case of the English "dangling" participle. The student will translate these forms either by a temporal phrase ("while doing something," "while something was being done") or by a participle ("doing something," "having done something"). This form, which occurs abundantly in the mathematical sciences, will not long offer any mystery to the student.⁴

Since the dictionary plays an especially important rôle in this approach, all aid should be extended in helping the student to trace back an inflected form to its dictionary entry. In this connection, the consonant mutations and the other irregularities of verbs, as one proceeds from the present tense to the infinitive, will prove particularly troublesome. The teacher should help the student to perform this difficult operation. On the other hand, he will not have to worry much about word order; because Russian follows few set rules, it will often be possible to

proceed word for word and still come up with a reasonably good translation. It should be noted in passing that teachers of Russian who do not know English well cannot use this method to good advantage. Also, it is helpful, though not indispensable, to have a knowledge of science and technology. Those not acquainted with technical terminology should read or study scientific style in English writing.

Some teachers using this rapid-reading method maintain that there is no time for students to memorize vocabulary or idioms. I am of the opinion that a certain amount of memorization is helpful, since it might save many a time-consuming trip to the dictionary. Some of the most important idioms and scientific phrases can be drilled in class, either individually or in chorus, or assigned as homework.

Gradually the student will acquire the basis of a translation skill in technical and scientific Russian. In some ways this will resemble a mechanical skill, since the acquiring of ability to find words in the dictionary and the habit of carrying out "ending analysis" will parallel the operations of a translation machine. However, since the student will possess this effective amount of knowledge, and thus will have acquired an important tool of research and investigation, the time and effort spent on the course may be considered well invested.

It must be admitted that this rapid-reading approach is devoid of the élan and excitement which accompany the teaching of living speech or artistic literature. However, both teachers and students may derive a great deal of satisfaction from knowing that they are helping American science to avail itself of the latest achievements of Soviet research and technology. Also, students thus trained may some day serve as intermediaries between the scientists on both sides of the Great Divide, and in realms not usually subject to political or ideological polemics.

We also admit that such a course is merely an introduction to a thorough mastery of scientific Russian. However, if the student has been conscientious in his work he will have acquired a base on which he can build a more elaborate structure. He may decide to do additional work in scientific Russian or even study other phases of the Russian language. He may try to do abstracting and thereby contribute to the progress of his particular field of specialization. But whether the student confines himself to basic operations or works to attain additional mastery, one thing is clear: American scientists and technicians need no longer be deficient in the knowledge of technical Russian. There is a way to make this skill available to all those needing it or interested in it, without devoting years of heartbreaking toil to the task. Resolute action and a logical approach can bring about astonishing results here--as they can in many other fields of human endeavor.

NOTES

1. According to Alexander G. Korol (Soviet Education for Science and Technology [New York and London: John Wiley and Sons, 1957]), Soviet students study foreign languages six years in the secondary schools, four years in college and about a year in graduate schools. As for the latter, Professor Korol says: "The graduate study of a foreign language formally calls for sixty hours of class instruction (in groups of five students) and, according to one source, oral and written translation of not less than 300 pages of text" (p. 381). Altogether, then, the average graduate student will have spent about eleven years in foreign-language study.
2. William B. Edgerton: "A Modest Proposal: The Teaching of Russian in America," The Slavic and East European Journal, VI, 4 (Winter, 1962), 357.
3. Lorraine P. Kapitanov, "The Teaching of Technical Russian," SE EJ, VII, 1 (Spring, 1963), 52.
4. In this summary, as one would expect, only some of the outstanding aspects of Russian grammar as they apply to scientific style are discussed. Thus, in dealing with the participles, one might mention that both present and past active participles may be converted to the reflexive-passive by the addition of the suffix -sya; the same applies to the gerunds, where the corresponding reflexive-passive ending is -s, plus the soft sign. The reader should kindly remember that this article presents a general discussion of the method; it does not claim to be complete in every detail.

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